Tn the third of these articles Roger Williams explains the L second part of his ID/DS 4-speed gearbox conversion for the Traction.

Starting with the exhaust - there are at least two types of exhaust manifold fitted to ID/DS engines depending on the age. The most common type appears to be the one which points toward the front of the car which gives

very little space in which to turn the line of the exhaust through

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fter installing the engine/ gearbox unit in the car as described in the last issue there is the small problem of getting the ancillaries like the gear change and clutch to work properly AND look as if they

90° to get it through the hole in the side valance panel. It is particularly tight on the narrow bodied cars. I've not found an exhaust factor that can satisfactorily bend a 50mm dia, pipe through 90° with a centre line radius of

Fig 1: Special bottom hose for the narrow-bodied cars [widebodied cars are similar

were original fittings.

Replace existing near-side rear wishbone grease nipple with 45° elbowed nipple on narrow bodied cars.

75mm adjacent to a flared end. The solution was to make one up based on a malleable iron water pipe elbow which Is perfectly smooth and of constant section around the bend. A flared flange is brazed into the top end and new pipe, which an exhaust factor can bend, connects to the existing pipe under the hull.

The other types of manifold points, relatively directly, at the hole in the valance panel and a special pipe can be made up by the local exhaust factor. These nonstandard front sections are made of the thickest gauge steel available so that replacement is only necessary every 5 to 10 years.

The bottom hose connection from the radiator to the water pump has to follow a tortuous path around the camshaft pulley and under the dynamo as shown in Fig 1. This can be made from odd bits of heater hose but

Iron frame

mounted to the

batter v box

-- Column mechanism

runs in nylon blocks

1

· Original column

Traction gear lever welded to

mechanism

stump of ID 19 lever

is more satisfactorily made by brazing together a series of large diameter copper central heating elbows. The water pump on the ID/DS cylinder head is offset to the left and the original Traction fan, which is mounted on the new water pump pulley, has to have the tips of the blades shortened by about 20mm on the narrow boded can to give clearance to the bottom hose. Cooling efficiency is unaffected. The bottom hose, on the narrow boded cars, covers the rear wishbone grease nipple and this is replaced by one with a 45° elbow.

The top hose is made by joining the radiator end of the Traction one to a shortened ID/DS one. Push an old bit of exhaust pipe into the Traction hose and then feed the ID/DS hose over

Fig2:Tokeep the Traction looking original the guts of the original column change mechanism is mounted horizontally behind the dash with the original gear lever cut off just behind the dash Cable to transfer

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it and clamp with a jubilee clip. When connecting the water pipes make sure you can get to all the jubilee clips to tighten them with all the body panels on. I made the mistake first time of clamping the piping before installing

car had to be taken to bits to get at the offending joints.

And so to the gearbox linkage. The gear change mechanism is a combination of back/forward and lateral movements. In the ID 19 the gear change is via a column

> mounted mechanism which provides the back/ forward motion



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Fig 3

via a series of articulated ball cranks/rods and the lateral one with a cable. To keep the Traction looking original the guts of the original column change mechanism is mounted horizontally behind the dash with the original gear lever cut off just behind the dashand a Traction leader





to the stump. The layout is as shown in Fig. 2. However, this repositioning of the column change mechanism moves it further away from the gearbox and the original cable and rod are too short. Also the operating mechanism of the

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general view of an ID 19 gearbox fitted with a gear linkage for a narrow bodied car with a rod operated clutch. Fig 4 shows this mechanism in more detail. Note that the connecting rod between the cable and the bell crank op-

> erating the across the gate movement passes over the crossmember

gearbox is forward of the radiator and on the narrow bodied cars there is no direct line between the bulk head and the gearbox without going through the radiator. It is possible to get a direct connection on the wide bodied cars but I wanted a mechanism that would fit all cars with only minor modifications necessary when changing to/from a wide to a narrow bodied car. With the column change mounted horizontally behind the dash, the cable and rod [with a small extension × Maria piece] can reach the bell housing and the solution was to provide a new linkage system from here to the gearbox operating mechanism. Fig. 3 shows a Original cable

Transfer bracket [inverted/ handed for wide-bodied cars]

Fig 6: Trans-

fer mecha-

nism for nar-

row-bodied

cars

Shoe joining cable to connecting rod to bell crank

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Rocking lever

[handed for wide-

Connecting bar

for rocking plate

bodied cars]

Connecting

bar to bell crank

mounted on the bell housing, and the bell crank operating the across the gate movement. Fig. 5 shows this in more detail. The individual components of the transfer mechanism and the extension of the 'across the gate' plunger are shown in exploded form in Figs. 6 & 7 respectively.

One of the problems is getting reverse gear which is engaged by pushing against a strong spring within the gearbox presumably to stop anyone slipping into reverse instead of top. In the ID 19 the original gear lever gives more than a 10:1 lever arm and the push forward with the full support of the seat is easy. However, when the column mechanism is

for plunger

extension

Rocking plate

Spacing washers

mounted horizontally behind the Traction dash with the Traction gear lever, not only is over half the lever arm advantage lost but the action is across the cat This is not so had on the LHD cars. where you can push away from yourself with the support of the seat/door. On the RHD cars you have to pull with your left hand and you tend to slide over the slippery leather seat A couple of coils are ground of the spring to give some resistance to warn you that you ,arc going into reverse, but

Figure 7

Gearchange plunger

Plunger extension to bell crank

not enough to develop a Charles Guide bush Atlas left arm.

> Finally to the clutch - the operation in the original ID 19 cars was by cable which was anchored in a boss cast into the top of the bell housing. Bosses are cast for both left and right hand drive cars but only one will have been slotted and tapped. The clutch fork lever is operated by an articulated rod actuated by a bell crank and this system can be used

AUSTRALIA'S & NATIONAL B. MAGAZINE & FOR & CITROEN & OWNERS 42 S AND S ENTHUSIASTS 43 directly with an original compatible cable on the left hand drive cars with minor modification at the pedal end. Right hand drive cars have rod operated clutches and to retain this robust and reliable operation a new clutch lever narrow bodied cars. However, it should be possible to fit the later engines, which are plentiful at the momentinto the widebodied cars and that is my next project. The gearbox is wider and deeper and the 5-speed version does stick a

long way out at

the front but I am hopeful that it can be I made



and pivot boss, as shown in Fig 8, is made up.

Although you can get everything in, it is a bit of a squeeze on the narrow bodied cars. However, once installed and operational there is less maintenance than on a Traction and the performance and economy are in a higher league altogether.

And what of the future? The supply of early ID/DS engines/ gearboxes is becoming limited in this country and these are the only ones that will fit into the



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to work.

Roger has certainly given a lot of thought and hard work into the planning and development of his 4 speed gearbox conversion in recent years, and we are fortunate to be able to publish details of his work for the benefit of all members.

Whilst every effort is made to ensure the accuracy of the information and advice published in this magazine, neither the TOC, CCOCA, or the officers and members thereof or the authors, accept any liability whatsoever for such information and advice.

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Fig 8: New clutch lever and pivot boss for rod operated clutches. Unfortunately this illustration was of very poor quality in the original article.

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